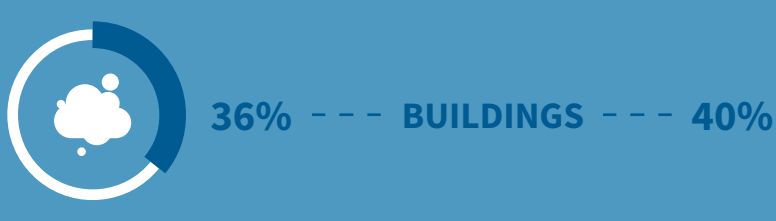
BIPV: AN ESSENTIAL ROLE TOWARDS ENERGY TRANSITION

The EU 2030 Climate Target Plan aims to

REDUCE THE GREENHOUSE GAS EMISSIONS
compared to the levels of 1990
to -55%

INCREASE THE ENERGY PRODUCTION BY RENEWABLES
to 40%



Photovoltaics on the built environment

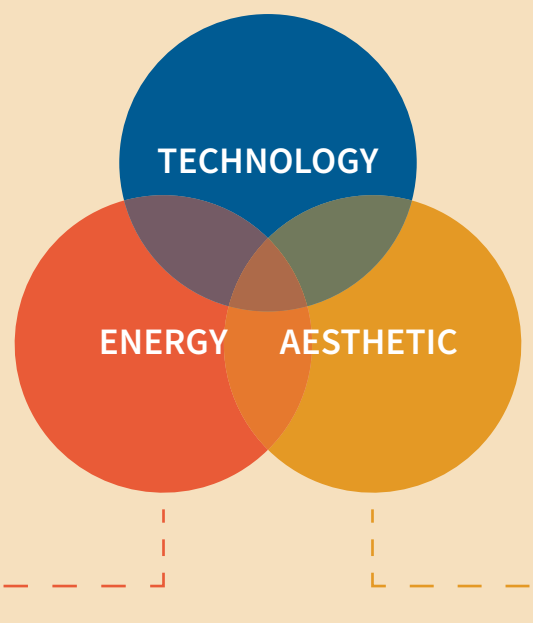
could largely support the achievement of the EU objectives by turning buildings into decentralised renewable energy producers, while saving lands and landscape areas.

But… What is the difference between PV and BIPV?

Photovoltaic	VS	Building Integrated Photovoltaic
- Its purpose is primarily to produce energy		- It is a part of the building structure, with multifunctional use
- It involves only the roof surface		- It involves the whole building
- It has no aesthetic function		- It is highly customisable in shape, colour and dimension

BIPV could play a relevant role thanks to its integration of

To maximise the local use of the produced electricity (conceiving the buildings as micro energy hubs consuming, producing, storing and supplying energy)



Replacing traditional building components, and fulfilling other functions required by the building envelope (as weather protection, heat insulation and sunlight control)

In harmony with the architectural language, and the overall image of the composition and the context

The numerous benefits of BIPV applications

ENERGY

In addition to the **production of solar energy**, BIPV provides **various benefits related to energy saving**, such as control of the solar gain by filtering the entering light, or control of the thermal exchange between inside and outside.

ECONOMIC

BIPV application can **save the costs of the components it replaces**. Moreover, the electricity produced provides a **return on investment**. **Other indirect economical benefits** are linked with the energy savings provided by its multi-functionality.

ENVIRONMENTAL

BIPV has a **positive effect on the environmental footprint** of a building, as its applications increase the use of renewable energy and can reduce the energy demand.

AESTHETIC

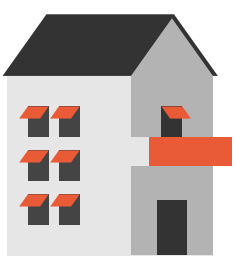
BIPV reached a **high level of customisation potential and might provide a unique look** to a building, which enables innovation for architects and designers.

BIPV can be integrated in many ways

1 ROOF SYSTEMS

2 FAÇADE

3 EXTERNAL DEVICES



Tips for a good BIPV integration

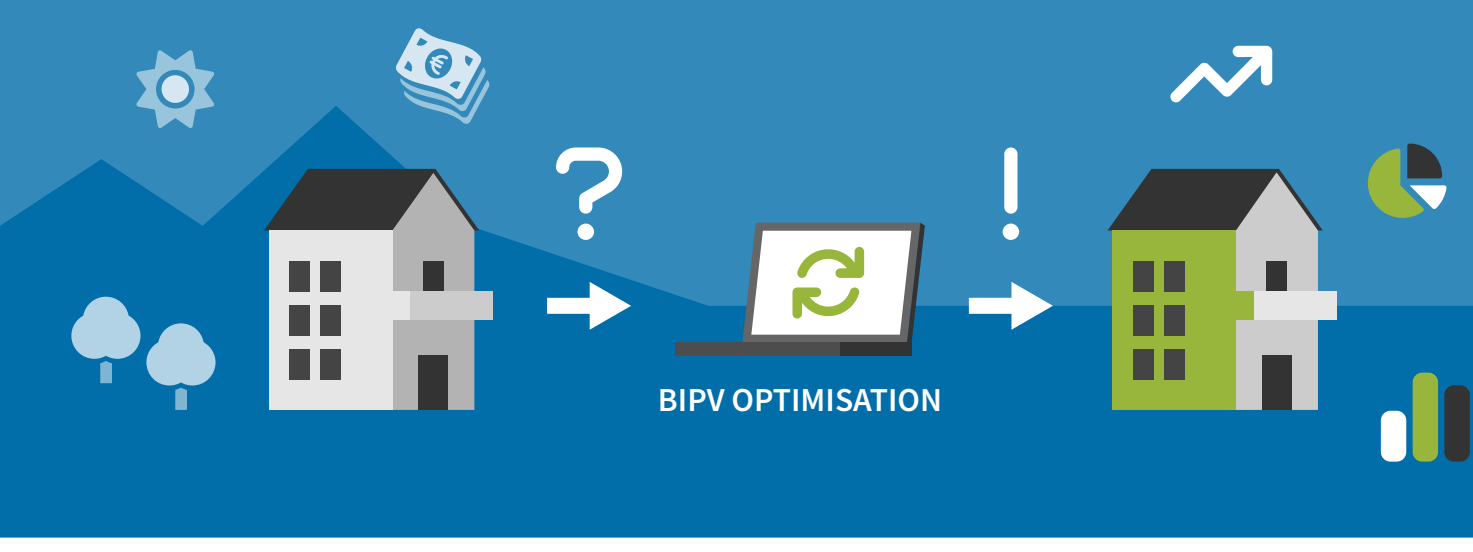
Considering the complexity, expertise in different branches is needed and different actors should be involved and carefully coordinated in the design and installation process.

- To maximise the RES harvesting in the buildings, the interaction between buildings and energy systems has to be optimised.
- Digitisation can help optimise distributed PV generation and facilitate its management, overcoming the fragmentation of the BIPV project development process.

The BIPV Optimisation tool

can help the designers in the preliminary design of BIPV system, taking into account different aspects (techno-economic, energy and environment-related).

The Tool supports the early stage of buildings design, suggesting **the optimal capacity and position of the photovoltaic modules** and **the optimal electric storage capacity**, according to the case study specificities and the objective set in the optimisation.



Discover more on BIPV Optimization Tool at platform.energymatching.eu !

Credits and sources: Eurac Research / Other sources: European Commission, SUPSI